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ABSTRACT

Suggesting that technological changes are leading to a transformation from an industrial to an information society, this paper examines the role of strategic planning within this process. First, the paper explains the maturation of community college mission priorities in the post-World War II period. Next, a conceptual framework is presented concerning the changing nature of society and the implications of this change for postsecondary educational planning. This framework takes into account the role of computers and market research in postsecondary education, in terms of the tools that can be utilized and the colleges' options and priorities. A description is then provided of the way in which futurism is incorporated into North Central Technical College's strategic planning and human resources development model. This description includes a series of assumptions and discusses thier implications for institutional and developmental goals and objectives. Finally, the paper considers the ramifications of the onset of the computer literate, high technology, information society for strategic planning and management in community services and continuing education, covering the areas of human resource development, organizational development, and community development. Appendices include survey findings on organizational training and education programs and areas of institutional research activity at two-year colleges. (HB)

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STRATEGIC PLANNING FOR COMMUNITY SERVICES AND CONTINUING EDUCATION

by

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ABSTRACT

Colleges and universities were created to fill a role that society deemed necessary. At one time they stood as the primary source of knowledge/information generation and transmission. In recent years, however, the rapid rate of change and the learning society's insatiable demand to remain current with the knowledge and technology explosion has caused the emergence of a broad range of "higher education" providers. Research indicates that only about 1 in 4 persons seeking higher education and training is enrolled in our colleges and universities. In addition, during recent years many students and taxpayers have become concerned about the "return on investment" in colleges in terms of value added to individuals and the returns to society in general. If postsecondary education is to remain viable in the years ahead, it must understand the evolution of human society and develop a proactive strategic planning capability to help it pass from one type of society to the next.

During recent years we have experienced the onset of a transformation to a new type of society. Masuda indicates:

> Mankind is now entering a period of transformation from an industrial society to an information society.... Man is now standing at the threshold of a period of innovation in a new societal technology based on the combination of computer and communications technology, quite unlike any of the past. Its substance is information, which is invisible. This new societal technology will bring about societal transformation which, in a double sense, is unprecendented.

This transformation to the information society is concerned with the shift from physical productivity of material goods to information productivity and can be expected to bring about fundamental changes in human values, in trends of thought, and in the political and economic structures of society. This learning and information society will be characterized as interactions between people and ideas and knowledge.

This paper explains the maturation of strategic planning and the implications of the onset of the computer literate, high technology, information society for postsecondary education, community services and continuing education.

MUTUALITY OF INTERESTS

> There was a time when many institutions of higher education were regarded as enclaves within their surrounding communities. Although the walls around campuses were less formidable than those of prisons, they symbolized a purposeful separation of the worlds of formal learning and ordinary living. Town-and gown relationships were frequently characterized by hostility on the one side and aloofness on the other. With the growth of higher education's importance to society, this relationship in most places fortunately, has undergone a marked change. Unfortunately, however, the mutuality of interests is still not widely understood and as fully appreciated as it ought to be.[1]

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Shortly after I began to work on my presentation, I was reminded of the minister who had been reassigned to a parish in Texas. Because he wanted to impress the congregation, he pulled his best sermon from his files. Only one parishioner, a cowboy, appeared in church on Sunday. The minister preached the entire sermon. After church the minister asked the cowboy how he liked the sermon. The cowboy responded, "You know Reverend, each night I take a load of fodder down to the watering hole to feed the cattle. If only one cow shows up, however, I don't give her the whole load."

After spending some time on the presentation, and not wanting to give you the entire load, I settled on the following limited, but achieveable objectives:

1. To explain briefly the maturation of mission priorities and planning processes in higher education in this nation,
2. To present a conceptual framework about the changing nature of society and the implications for postsecondary education planning,
3. To describe the way futurism is incorporated into North Central Technical College's strategic planning and human resource development model, and
4. To discuss implications of the onset of the computer literate, high technology, information society for strategic planning and management for postsecondary education community services and continuing education.

The Maturation of Mission Priorities and Planning Processes

During the post World War II years mission priorities had a focus on acquiring resources and facilities for the increased number of students resulting from the equal right demand for access to postsecondary education and limited research to support selected purposes of the industrial society. Planning in postsecondary education during the 1960s was undertaken in response to immediate needs of the instruction and research mission priorities with minimum regard to the long-term future.

During the 1970s the influx of traditional 18 to 22 year old students began to stabilize. In addition, research and development underwent significant change. Reports by the Organization for Economic Cooperation and Development,[2] the National Commission on Research,[3] and the National Science Board[4] trace the shift toward "socially relevant research", the democratization of university decision making and the accompanying "bureaueratization of university research", the rapid deterioration and growing obsolescence of laboratory equipment, and the aging of research faculty and lower morale of junior faculty. Additionally, business and industry had to shift to defensive R & D with 2 to 3 year payoffs, leaving much of the large scale "industrialized" basic research to the government.

Postsecondary education began to experience the impact of a broad range of demographic, social, economic, and political forces. As a result, organizations such as The Council of Independent Colleges (formerly The Council for the Advancement of Small Colleges), the Academy for Educational Development, and the American Association of Stage Colleges and Universities launched programs relating to comprehensive institutional planning. These projects, and others like them, all stressed the need to assess the external environment. The literature began to reflect descriptions of institutional planning processes including some way to assess the external environment.[5]

During this period of time, phenomenal growth occurred for a broad range of education and training providers including business and industry, the

department of defense, professional associations, adult education associations, and proprietary organizations. The National Conference Board, for example, indicated that in the single recession year of 1975 this nation's 7,500 largest private employers spent over $2 billion on employee education or as much as the recent annual totals of all contributions from all sources to colleges and universities.[6] In 1979, an article in The New York Times stated, "The American Telephone and Telegraph company spent $700 million on educational programs for its employees, or more than three times the $213 million annual budget of the Massachusetts Institute of Technology."[7] An article in the May 1980 issue of the Training and Development Journal stated, "Industry spends on employee education more than six times the amount appropriated by all the states for all of higher education."[8] In 1981, an article in The New York Times stated,"Within a short drive of Boston, a city with no shortage of higher education, are four new degree-granting programs that are not even affiliated with a college or university. They are sponsored by a hospital, a bank, a consulting firm, and a computer manufacturer."[9]

The slowdown in productivity caused state-level planners to reexamine the role of education in economic revitalization. Thus, the decline in the number of traditional 18 to 22 year old students, the intrusion of a broader range of education and training providers and a significant change in the research partnership has resulted in a focus on the community service and continuing education mission priorities. Institutional planning processes began to embrace the strategic concept. Strategic planning is, essentially, a way to match an organization's resources to a changing environment. It requires a way to develop a conceptual framework about the changing nature of society, audit the strengths of the institution, and match institutional strengths with opportunities in the external environment.

Conceptual Framework About Society

The history of the development of human society can be traced from the hunting society through the agricultural society to the industrial society. In the hunting society, mankind was concerned primarily with extracting things from nature. The transformation to the agricultural society was slow and based on rather simple technological innovation. The hunting and agriculture societies can be characterized as interactions between people and nature. In comparison, the transformation from the agricultural society to the industrial society occurred more quickly and was the result of technological advances in energy, transportation, communications, raw materials, and research and development networks. The industrial society can be characterized as interactions between people and goods or fabricated nature. More recently, advances in the industrial society have been the result of the integration of macro technological systems, the aggregation of complex technological developments in each of the above mentioned networks.

During recent years we have experienced the onset of a transformation to a new type of society. Masuda indicates:

> Mankind is now entering a period of transformation from an industrial society to an information society.... Man is now standing at the threshold of a period of innovation in a new societal technology based on the combination of computer and communications technology. This is a completely new type of societal technology, quite unlike any of the past. Its substance is information, which is invisible. This new societal technology will bring about societal transformation which, in a double sense, is unprecendented.[10]

This transformation to the information society is concerned with the shift from physical productivity of material goods to information productivity and can be expected to bring about fundamental changes in human values, in trends of thought, and in the political and economic structures of society. This learning and information society will be characterized as interactions between people and ideas and knowledge.

Masuda describes four developmental stages of computerization based on the use of computers at the levels of (1) big science, (2) management, (3) society, and (4) the individual.[11] The big science stage took place in the period between around 1945 and 1970 and had a focus on "the state" making extensive use of the computer in large scale projects such as national defense and space exploration. The second stage of computerization had a focus on management-based computerization in both government and business and took place from around 1955 to about 1980. In about 1970 computerization advanced into the third stage, society-based computerization, in which the computer will be used for the benefit of society as a whole. In about 1975 computerization entered its fourth stage of individual-based computers, the beginning of the high mass knowledge creation society. Masuda indicates "that these four stages can not be a series of mere successive developments, but each stage will continue developing even while the succeeding stage is coming into being."

Computers will impact on every sector of our society. In the field of engineering, for example, increasing competition in world markets has made manufacturers realize that they must do more with less, and do it better. Many manufacturers feel that an investment in technology will help them become more effective and efficient in what they do. Technological advances have been made in the design, engineering and manufacturing processes through Computer Aided Design (CAD), Computer Aided Engineering (CAE), and Computer Aided Manufacturing (CAM). Other terms used to describe technological advances include Group Technology, Manufacturing Planning and Control Systems, Automoted Materials Handling, Materials Requirements Planning (MRP), scheduling approaches such as Automated Time Standards (ATS), Computer Assisted Process Planning, and Manufacturing Resources Planning (MRPII). When these technological advances are combined in an effort to move toward the "Factory of the Future," the combination is referred to as Computer Integrated Manufacturing or Integrated Computer Aided Manufacturing.

Similar changes are occurring in business extending from market research through consumer satisfaction and in health care extending from health promotion through tertiary, long-term, extended care. A good example which can be applied to most fields is the concept of inventory. Inventory could mean (1) raw materials to make components, (2) components to make products, or (3) distribution of products to meet consumer demands. The acquisition, storing, retrieving, and redistribution of inventory is costly to any industry, particularly the educational and information industries. Inventory, be it raw physical materials or data, is undergoing rapid change due to computerization.

Implications for postsecondary education are apparent. Colleges and universities need some way to monitor demographic, social, economic, and governmental planning forces in society to develop visions and scenarios of possible alternative futures for their institution.[12] Tools for doing this include (1) needs assessment, (2) market analysis,[13] (3) environmental scanning, (4) trend analysis,[14] (5) policy analysis, and (6) issues management.[15] Visions and scenarios should be based on hard data about the college and its service area. The analysis should attempt to match institutional strengths and weaknesses with opportunities in the external environment. Bowen suggests four options for postsecondary education: (1) redirect resources toward higher quality, (2) redirect resources toward research and public service, (3) redirect resources toward new student clientele, and (4) retrenchment.[16] The above-described computer literate, high technology, information society suggests there are numerous institutional goals that can be derived from such a scenario. Leslie suggests a framework and a course of action for postsecondary institutions as they progress through various phases of the computerized, technological, "Third Wave" society.[17] Postsecondary education institutions and systems need some way to monitor changes in society to develop the most likely scenario of its future and then translate that scenario into specific goals and objectives to which resources can be allocated.

North Central Technical College's Planning Process

Over the past five years, North Central Technical College has developed a strategic planning and human resource development model in order to remain viable in the years ahead. The College examined numerous planning models from private and public regional universities and two-year colleges. The best models analyzed data about their external and internal environments, specified assumptions on which to base subsequent planning, and then stated goals and objectives. The College specified assumptions under ten categories and goals under seven categories at the institutional and departmental levels. These categories are as follows:

Assumptions Categories	Goals and Objectives Categories
1. Societal Context	1. Mission Attainment
2. External Agencies	2. Functional Relationships
3. Institutional Management	3. Qualitative Improvement
4. Programs	4. Program Development
5. Students and Enrollment	5. Professional Development
6. Student Services	6. Public Relations
7. Professional Development	7. Funding Sources
8. Physical Plant	
9. Equipment	
10. Fiscal Resources	

Dollars are linked directly to stated goals and objectives and reviewed by a College Budget Committee comprised of twelve persons representative of the various groups within the college community.

The analysis of demographic, social, economic, and governmental planning data helped to clarify fuzzy images of alternative scenarios for the institution. The assumption statements contain information about when advances in technology are most likely to impact on the college's service area, hence implications for the institution. In the business area, for example, when will word processing, computer graphics, interactive computers, and voice synthesizers have an impact? Such information can be displayed against a timeline as in FIGURE 1.[18]

In August 1979, the President's Cabinet established a Data Processing Task Force to study the data processing/word processing needs of the College

FIGURE 1

THE DECADES OF RAPID TECHNOLOGICAL CHANGE

The Electronic Society

	1980	81	82	83	84	85	86	87	88	89	1990	2000
Business Technologies Data Processing	Word processing Microprocessing Computer graphics National information banks			Fiber optics		Computer and artificial intelligence Automatic production lines		Electronic mail Automatic dictating of voice to hard copy		Voice synthesizers Interactive computers		
Engineering Technologies Transportation Energy				Two-way television Smaller, more efficient automobiles Energy conservation Synthetic fuel Toxic substance control Technological advances in monitoring		Shift in energy patterns-solar, nuclear fusion, biomass, Lasers 27.5 m.p.g.		hydrogen, microwaves, acquifers Conversion to metric system		Increase in industrial robots	Rebuilding of mass transit-bus, rail	
Health Technologies	Test tube babies Relationship between diet and disease Chemotherapy Cure for drug addiction Alcohol related disorders Major focus of research in biomedical and behavioral sciences				Artificial organs	Long-range effect of manmade pollutants on health		Health promotion Cardiovascular disease-link basic science & health science Biopsychological manipulation			Cure for cancer	Prolonged life
Public Service Technologies	Government policy impact analysis Advances in crime lab science							Programming for volunteers				
Revolution in Education	Access Discs Video tapes Advances in CAI-CMI	Opportunities for handicapped Courses by newspaper Facilitators of learning Consortia				Cognitive style mapping Microwave Communications satellites Cable TV			Memory drugs Interactive TV and computer Education for each		Altered states of consciousness Chemistry of learning	
Accountability	Guidelines National goals	Government standards Deregulation Increased regulatory action				Safety limits		Safety and health inspections				
Finite Resources	Major changes based largely on ideas and processes launched during the 1970s, some poised now for an explosive burst of growth											
Change in Workplace Technological Attitudes/Values	Increasing pronounced shift in American values - dignity and self-worth Increased use of robots Flex schedules Meaningfulness of work Changing structures Synchronizing training schedules with work schedules					Job enrichment Job sharing		Humanistic environment Human resource development (HRD)				

for the next several years. The DPTF surveyed all departments in an effort to develop a description of the future data processing environment. This description was sent to six vendors with an invitation to obtain additional information personally from all departments, submit a written proposal, and make a presentation. The DPTF analyzed critically the six proposals based on dimensions of the data processing environment including conversion, state of the art technology, software capability, growth potential, terminal acceptability, hardware and software support, maintenance, security, word or text processing, space requirements, reliability, and other variables. Site visits and inquiries were made to colleges and corporations using various equipment configurations. A matrix evaluation form, using the above-stated criteria and vendor, was used to make the analysis as objective as possible. The two finalists were asked to make an additional presentation to an expanded group including persons from the Data Processing Program Advisory Committee and to complete a questionnaire developed by the group. After considerable analysis, the DPTF recommended unanimously that the College select the Hewlett Packard 3000-44. The Board of Trustees approved the recommendation on October 1, 1981. The College began the conversion to the new system almost immediately.

A capital appropriations bill contained $210,000 in technical education equipment funds and $1.8 m for equipment linked to a $3½ m building renovation project. In order to make wise use of these funds, the President's Cabinet, Academic Council, and other key persons, held a discussion on strategic goal areas on January 26, 1982. These strategic goal areas were as follows:

I. Information Processing
   A. Computer Literacy
   B. The Office of the Future or the Paperless Office

II. Electronic Delivery of Educational Programs and Services
   A. Interactive Diagnostic and Instructional Systems
   B. Telecommunications and Teleconferencing Systems

III. High Technology
   A. Advanced Machine Tool Design
   B. Microelectronics
   C. Robotics
   D. Lightwave Circuit Technology

Computer literacy can range from the ability to read a printout through systems analysis and design. Between these two ends of the computer literacy continuum would be such competencies as (1) the use of word processing equipment as input; (2) use of optical mark sensing equipment in test grading and upgrading the student data base; (3) computer assisted or managed instruction, either using a "canned" program or writing a program; (4) conducting longitudinal studies of student progress; (5) a broad range of applications in business and industry such as statistical quality control, inventory control, computer assisted design (CAD) and computer assisted manufacturing (CAM); and (6) language proficiency in a broad range of data processing engineering contexts. (See FIGURE 2) Equipment decisions were then made to purchase selected items from the $210,000 authorization and other items from the $1.8 m authorization, including a HP 3000-64 for the Data Processing Program.

The College went through a similar experience with word processing. The strategic goal area of the office of the future or the paperless office includes (1) word processing, (2) personal computers, (3) electronic mail (4) computer assisted retrieval, (5) computer output microfilm, (6) facsimile devices, (7) teleconferencing, and reprographics. (See FIGURE 3) Specification sheets were designed by a Word Processing Task Force and mailed to vendors. The WPTF listened to presentations from nine vendors the first two weeks of June. Selected vendors were asked to demonstrate, on-site, the interaction of their equipment with the HP 3000. A system was selected and installed and personnel were trained on the new system.

Thus, the comprehensive planning process helps the institution to identify strategic goal areas derived from an analysis of information about the college's external and internal environment.[19] Data about the college's external environment are interpreted into goals and objectives for community services and continuing education.

FIGURE 2

ELEMENTS OF THE STRATEGIC GOAL OF COMPUTER LITERACY

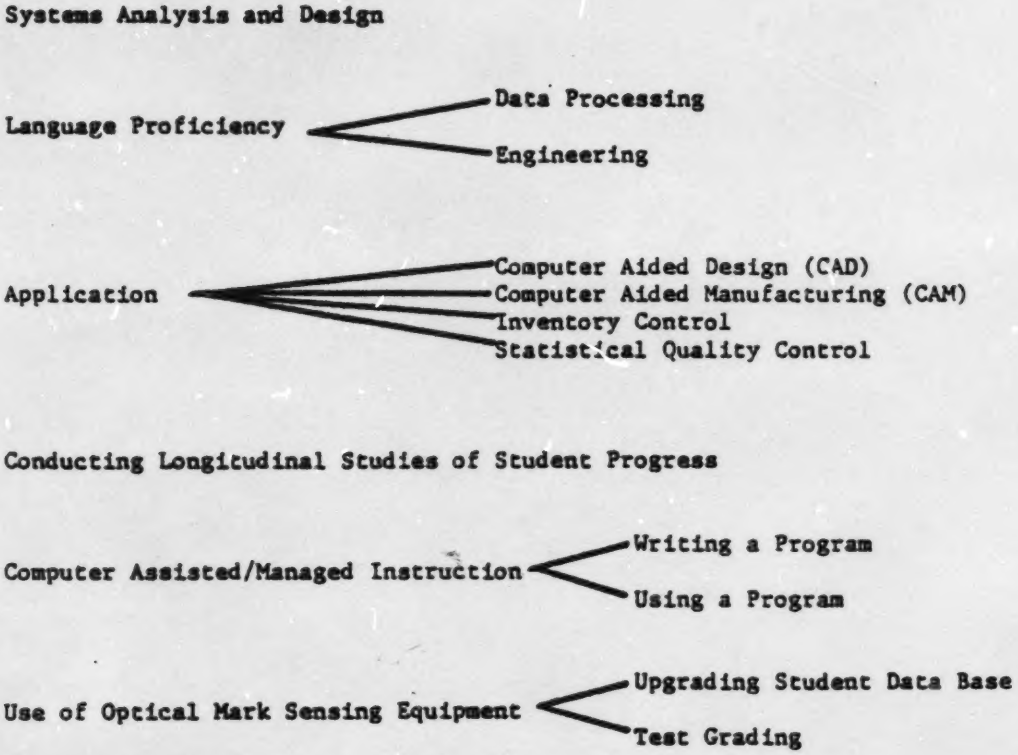


FIGURE 3

ELEMENTS OF THE STRATEGIC GOAL OF

THE OFFICE OF THE FUTURE OR THE PAPERLESS OFFICE*

WORD PROCESSING

development, revision, and production of documents such as letters, reports, labels, and directories.

PERSONAL COMPUTERS

small but powerful computers that can provide groups of users with capabilities such as filing, retrieval, sorting, word processing and report creation without the need for extensive programming or reliance on a large central processor.

ELECTRONIC MAIL

electronic work stations and message systems to send messages to one or more addresses where the communications can be read on their electronic equipment and respond at their convenience.

COMPUTER ASSISTED RETRIEVAL (CAR)

a combination of a computer system and a microfilm storage and retrieval device to get information from massive files that are stored on roll microfilm or microfiche.

COMPUTER OUTPUT MICROFILM (COM)

a computer process which produces information on microfilm instead of on paper.

FACSIMILE DEVICES

a way of transmitting pages of copy, such as correspondence or contracts, over long distances.

TELECONFERENCING

a method of simultaneous remote communication involving many people that may be as simple as a speakerphone conference call or as elaborate as a live video conference with terminals or facsimile devices for transmitting images, whether graphic or narrative.

REPROGRAPHICS

the use of electronics in the preparation of documents that can include input of original text through word processors linked directly to electronically controlled equipment that can set type in a multitude of type styles and sizes as well as automatically generate logos, form outlines, and charts and graphs.

*Source: H. Gerald Moody, "The Face of the Future: The Office," Voc Ed, January/February, 1982, pp. 36 and 83.

Implications for Postsecondary Education

The onset of a transformation to a new type of society is occurring at a time when illiteracy is a major problem in this nation. Numerous articles have been written in recent years about the growing number of functionally incompetent,[20] scientific illiterate,[21] and the growing illiteracy problem for business when employees lack reading and writing skills necessary for their work.[22] An article in the Boston Sunday Globe indicated that it is scandalous that Johnny and Janie cannot write when they enter college "but it is perhaps less scandalous than the possibility that, when they emerge as bachelors of arts or science, they may be unable to describe either discipline in acceptable written English."[23] The problem is compounded when to these forms of illiteracy are added (1) occupational illiteracy, (2) economic illiteracy, (3) research illiteracy, (4) management systems illiteracy, (5) information processing illiteracy, and (6) technologic illiteracy. Human resource development, the prevention of human obsolescence, is the biggest challenge to postsecondary education in the years ahead. Implication of the onset of the computer literate, high technology, information society will be discussed in terms of (1) human resource development, (2) organizational development, and (3) community development.

Human Resource Development. Professional preparation and professional continuing education is an extraordinary complex task today. The rapid rate of change of the knowledge and technology explosion has caused the obsolescence of people, equipment, physical plants, and entire industries. With regard to person-centered obsolescence, Hux states:

> Obsolescence exists when the employee lacks the skills necessary to meet current performance expectations. Employee obsolescence can be related to a number of phenomena; it seems, however, to be largely a function of either technology, promotion to a level of incompetence, or the aging process. Recognition is one thing; what to do about the problem is, or should be, of major concern not only to the business world, but also to those in technical education.[24]

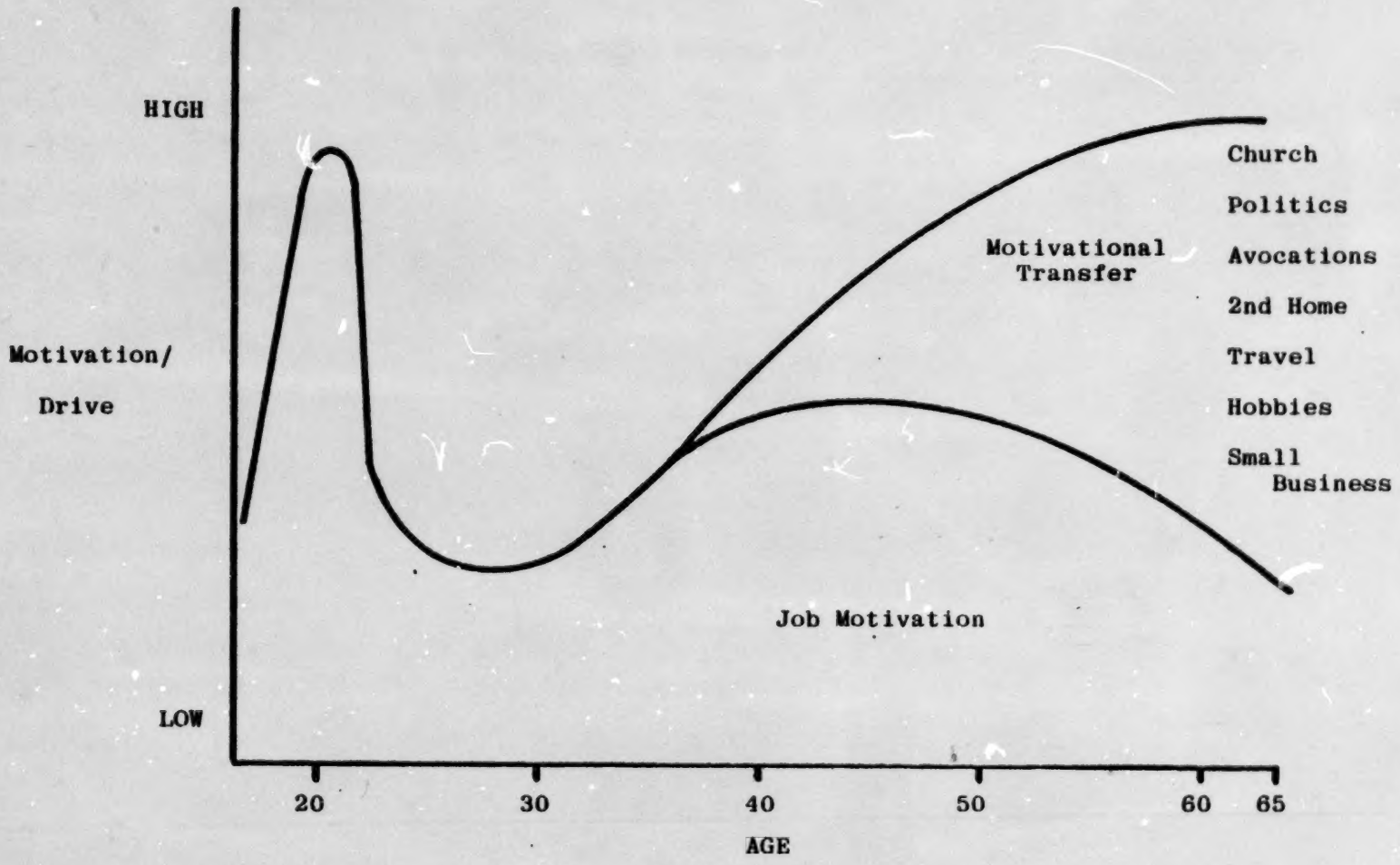
At an American Technical Education Association Atlantic Regional Conference, Jack Ellis, Information Systems Education Manager for the Western Electric Corporate Education Center, made a presentation on technological and managerial obsolescence from the industrial perspective. From a detailed analysis of the literature, Mr. Ellis estimated that in most technical and managerial areas, obsolescence usually occurs within five years and is attributable to a number of factors. (See FIGURE 4 and Appendix A) He indicated that until recent years industry viewed the employee as an operating expense; maintenance of technical and managerial competency was deemed to be primarily the responsibility of the employee. Forward thinking firms, however, are beginning to change philosophy, beginning to view employees as capital assets which require attention like other valuable investments.

Mr. Ellis stated that research studies seem to indicate that employee problems (obsolescence, turnover, absenteeism) are closely related to discontinuity in career development. He recommended taking appropriate intervention action at critical career stages to prevent or alleviate problems. He suggested intervention should occur at at least two points. (See FIGURE 5) First, many new employees experience "reality shock" of first employment; intervention strategies could include coaching, group meetings, or assigning the new employee to an experienced co-worker. A second point of intervention is approximately age 45; intervention strategies could include possible job rotation, assigning training duties and community works. Pairing new and experienced employees not only helps to reduce the reality shock, it allows the mature employee to serve as a good role model and pass on some of his/her knowledge about the company.

A number of things are happening that suggest that human resource development as it relates to the transformation to the new type of society is rapidly becoming a critical issue for postsecondary education. Masat states:

FIGURE 4

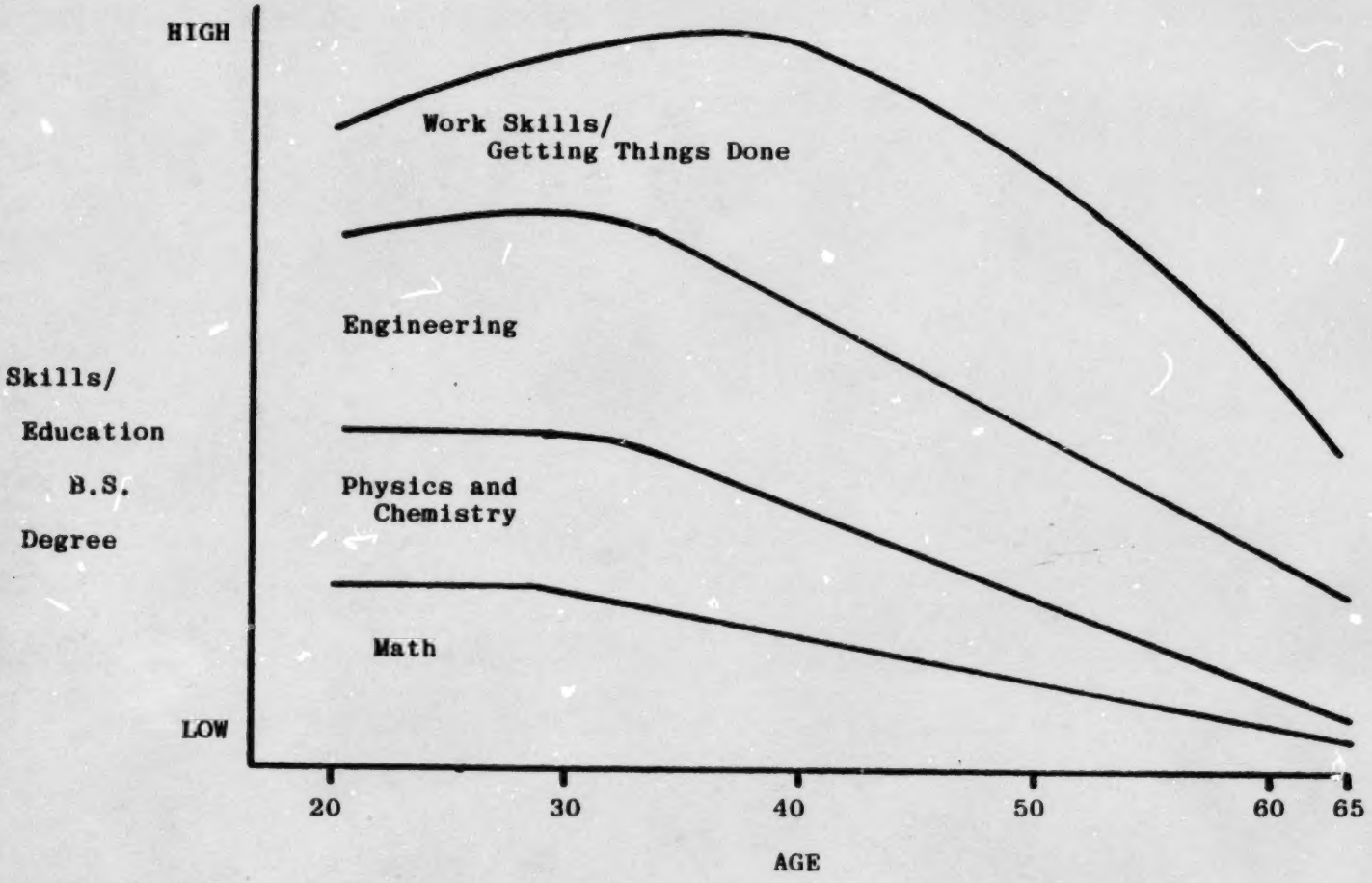
ENGINEERING CAREER LIFE CYCLE



Source: Thurman Hux, "Technological/Managerial Obsolescence," American Technical Education Journal (March-April, 1979) Vol. 6, No. 5, pp. 9-10.

FIGURE 5

ENGINEERING CAREER LIFE CYCLE



> Computer technology and literacy are two of our nation's most important resources. With about half the labor force holding information and computer-related jobs and earning more than half the labor income, information has become our major national commodity. Moreover, our society has become irreversibly dependent on computers, particularly in the areas of business, energy, space exploration, research, and national security. Our ability to use computer technology thus contributes significantly to our nation's present and future intellectual and economic strengths. For colleges and universities, computer literacy is increasingly needed for research and development, for efficient and effective management, and for the use of sophisticated technological equipment.[25]

At the national level, several bills have been introduced relating to computer literacy. For example, H.R. 5820 is to amend the Vocational Education Act of 1963 to make incentive grants to the States for electronic and computer technician vocational education programs and H.R. 5573 is to amend the Internal Revenue Code of 1954 to encourage contributions of computers and other sophisticated technological equipment to elementary and secondary schools.

States are also recognizing the critical issue of human resource development. Because a well-trained workforce is crucial to productivity of business and industry, the Ohio Board of Regents conducted a survey of business/industry training programs. The purpose of the survey was to identify and describe the formal training and education programs offered by business, industry, and public employers in Ohio that may be similar to the offerings of postsecondary education institutions. Representatives from the forty participating two-year campuses interviewed officials of firms in their area employing over 1,000 employees; a questionnaire was sent to firms employing between 250 to 1,000 persons. (See Appendix B) The study, Employer-Sponsored Instruction: Focus on Ohio Business and Industry, noted that less than one percent of all firms have formal employee-sponsored instruction programs. A sizable number of workers, including the unskilled and semi-skilled, as well as women and minorities, may be adversely affected by limited opportunities for training.[26]

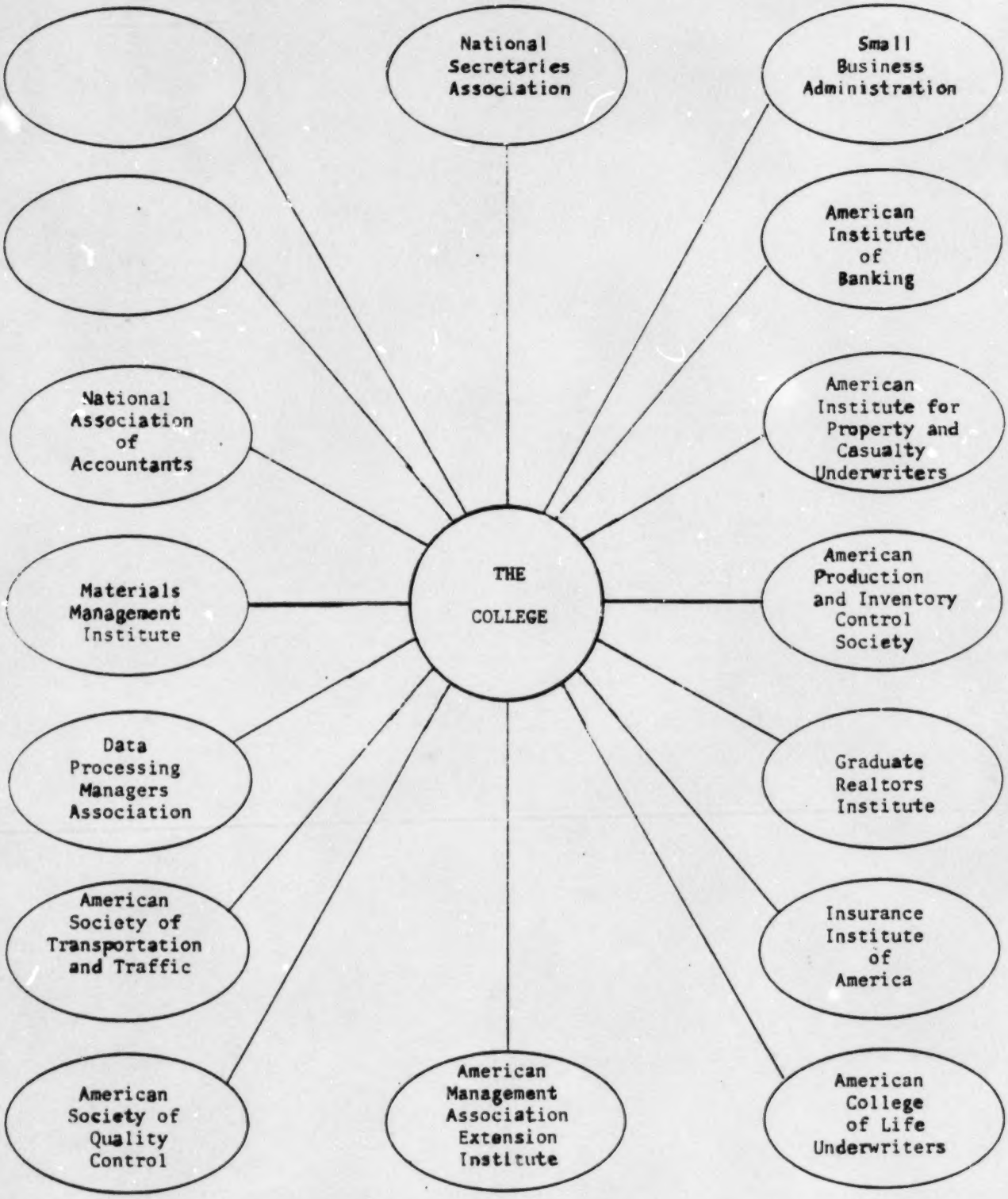
Professional organizations are also recognizing the critical issue of human resource development. For example, in November of 1981 The American Society for Training and Development launched a strategic plan aimed at calling more attention to the human resource/productivity issues. The plan called for ASTD to "monitor governmental, organizational, societal, and economic trends for their impact on the field of HRD in an effort to be proactive." The plan stated "ASTD should develop an ongoing needs-identification system for members and potential members" and "ASTD should develop an ongoing program to define the field and the professional competencies involved."

Human resource development is rapidly becoming the number one issue of the 1980s. HRD proceeds from a rational frame of reference, a somewhat clear perception of the ultimate goals toward which a person strives. Individuals need a comprehensive diagnostic-developmental system to keep growing and remain productive.[27] HRD holds great potential for the continuing education function of postsecondary education if it includes a better capability for developing a more sophisticated diagnostic capability and greater diversity in packaging its programs and services. This will only occur through greater collaboration and partnership with professional associations such as displayed in FIGURE 6.

Organizational Development. All organizations pass through various stages of growth and development. One widely utilized view of the developmental sequence represents evolution progressing from small to integrated to diversified. A number of writers have suggested stages beyond the three-stage model. Steinmetz proposes a four-stage model consisting of direct supervision, supervised supervisor, indirect control, and divisional organization.[28] His labels deal with methods of control, thus he focuses directly on the need for changes in style at various stages of development. Greiner describes five stages each with its own management style to achieve growth (1) creativity,

FIGURE 6

POTENTIAL CLIENTELE AND MARKETS


National Secretaries Association
Small Business Administration
American Institute of Banking
American Institute for Property and Casualty Underwriters
American Production and Inventory Control Society
Graduate Realtors Institute
Insurance Institute of America
American College of Life Underwriters
American Management Association Extension Institute
American Society of Quality Control
American Society of Transportation and Traffic
Data Processing Managers Association
Materials Management Institute
National Association of Accountants
THE COLLEGE

(2) direction, (3) delegation, (4) coordination, and (5) collaboration.[29] Between each stage a particular crisis is posited, thus requiring a style change. These crises involve first leadership, then autonomy, then control, and finally a participative style of mutual goal setting through a matrix of teams. James has a somewhat different concept of the organizational life cycle by focusing more on the problems faced at each phase of evolution; his five stages include (1) emergence, (2) growth, (3) maturity, (4) regeneration, and (5) decline.[30] The concept of stages of corporate development for computer/data processing activities has been described by Nolan as (1) initiation, (2) contagion, (3) control, (4) integration, (5) data administration, and (6) maturity.[31]

It is becoming increasingly clear that the strategies an organization uses are influenced by its position in a developmental sequence. All of the models emphasize the style and strategy changes associated with growth and the problems associated with these changes. Organizations at different stages of evolution tend to elicit different managerial and organizational styles. This will often mean that those who led the organization at one stage may not be able to do so effectively at another. In the first stage an organization requires a single guiding executive who basically operates a "one-person show." Such executives tend to be rather authoritarian, to emphasize short term thinking, and to have operating orientation. In the second stage a group of managers with functionally specialized responsibilities replaces the single authoritarian executive. Thus, the chief executive must be able to work with members of the management team and utilize their talents effectively. The move to other stages is accompanied by a divisionalized structure with loose control over the operating units while stressing long-term strategic planning.

Between August 1978 and December 1979, North Central Technical College

was involved in a project to retrain the unemployed in Richland County. Laudable and necessary as the project was, it represented a tertiary rehabilitation model as opposed to a primary or secondary prevention model. The intervention strategy was the result of a crisis as opposed to a process designed to diagnose a potential problem and prevent the development of the malady. Nor was it a secondary prevention model, that of identification of an illness at an early stage in order to prevent its complication. The intervention occurred only after the crisis struck the fatal blow even though early warning signals had been transmitted over the past several years.[32]

Some of the early warning signals have been flashing quite regularly in recent years and seem to be growing both in frequency and intensity. On the national level a recent labor-backed study contends that an epidemic of plant shutdowns is sweeping the nation, with companies moving factories and leaving behind a trail of human and community devastation. The study reports that between 1969 and 1976, plant shutdowns and relocations eliminated 15 million jobs and created 16.4 million new ones, a slight net increase overall.[33] The new jobs on the average, however, were lower-paying and in different regions of the country and did not go to the people who were left unemployed by shutdowns in the first place. The impact of this phenomenon was detailed in articles in The New York Times Magazine and the AFL-CIO American Federationist.[34]

Other research data suggest that our future is, for the most part, dependent upon the preservation, expansion, and creation of small businesses. "A recent study by the Office of Management and Budget found that small businesses tend to be more innovative, despite the government's preference for giant corporations in handing out research funds. The study found that small businesses accounted for almost half of all major innovations in the 1953-73

period and produced four times as many innovations per researcher as big business at a cost per scientist or engineer only half that of big business."[35] In Ohio, the 189,000 small firms created 66 percent of all new jobs in the private sector between 1969 and 1976; 80 percent of new jobs came from businesses less than five years old. Fifty percent of the state's workforce is classified as employed by small business; these firms generate 51 percent of the gross state product. Small businesses, however, have demonstrated they are unable to afford the type of assistance which is usually available to large corporations.[36]

Part of Ohio's response to the plight of small businesses was the creation of the Ohio Technology Transfer Organization and the Ohio Job Training Consortia.[37] OTTO is a statewide network consisting of The Ohio State University and two-year institutions working with state and federal agencies to provide small business and industry access to information, advice, and services that are essential to economic development and job growth. OTTO agents have access to computerized data bases which include the National Technical Information Service and more than 200 Federal R & D laboratories and centers representing 11 Federal agencies in the Federal Laboratory Consortium (See FIGURES 7 and 8). OJTC is intended to help business and industry diagnose training needs and develop programs in response to diagnosed needs.

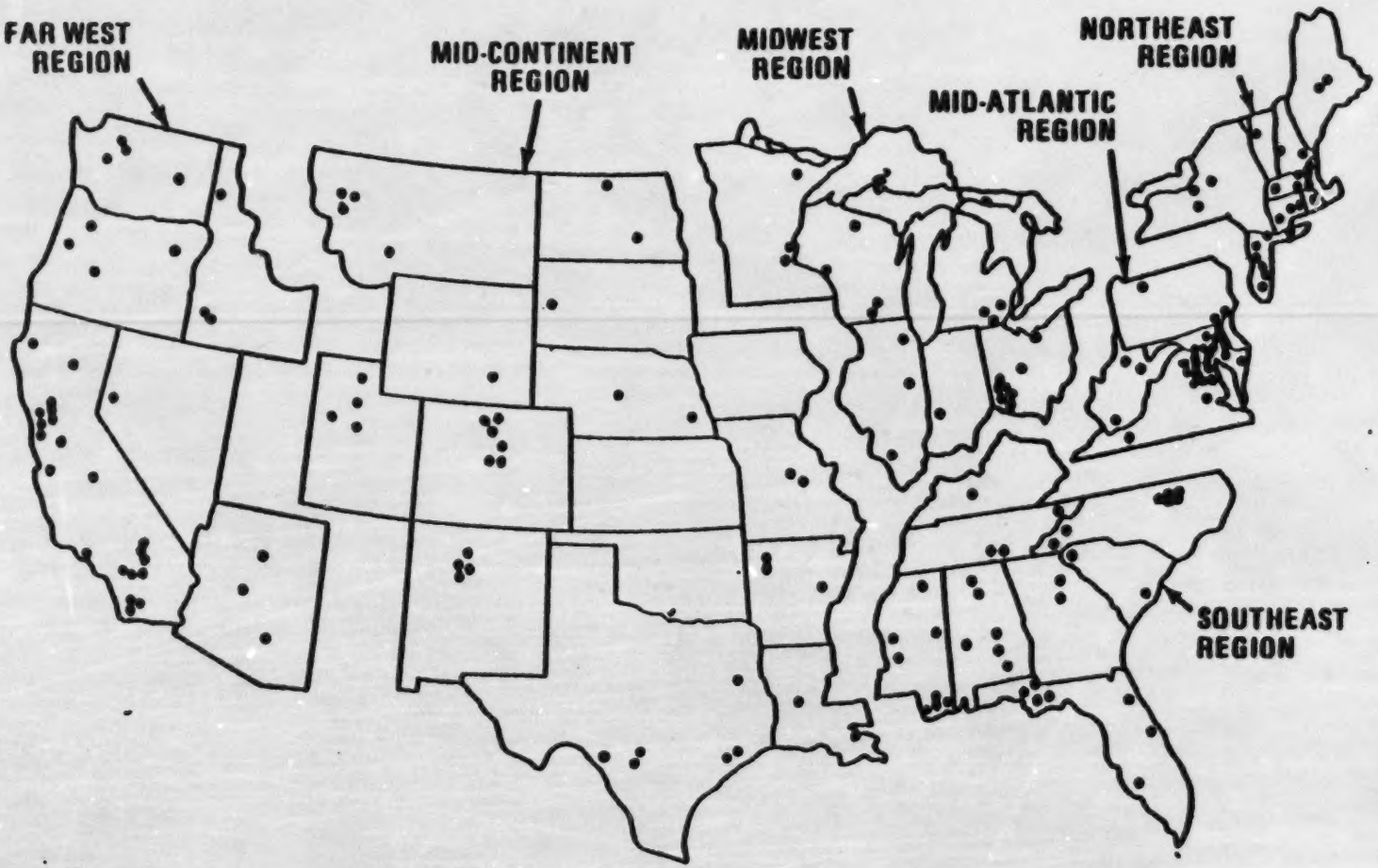
The potential for community services and continuing education services to small business and industry appears limitless, be it in the <u>prevention</u> mode or the <u>rehabilitative</u> mode. Michael Barker, Director of Policy Studies for the Council of State Planning Agencies of the National Governors Conference, indicates that 80% of the new jobs are created by establishments with 20 or fewer employees and no more than 4 years of age.[38] Cooper and Dunkelberg found that most entrepreneurs started their companies when they were 25 to 40; many are highly educated with 36% having 16 or more years of

FIGURE 7

OTTO DISTRICTS
1982 - 83
LAKE ERIE
OTTO AGENTS
FUTURE OTTO DISTRICTS

FIGURE 8

FEDERAL LABORATORY CONSORTIUM



schooling; and about 50% had entrepreneural parents.[39] In addition, research by Cooper indicates that the most important dimensions leading to new product success are (1) product uniqueness and superiority, (2) market knowledge and marketing proficiency, and (3) technical and production synergy and proficiency.[40] This type of research helps to provide direction for our efforts to assist business and industry.

Other tools are becoming available to help us in our efforts to assist business and industry be it in the prevention or rehabilitative mode. The American Business Network (Biz Net) is a satellite television subscription service of the U.S. Chamber of Commerce designed to cover a wide range of government and regulatory matters as well as provide in-depth education and management seminars.[41] SDC Search Service, a division of Systems Development Corporation, offers a variety of data bases such as the American Statistical Index; the Comprehensive Dissertation Index; the CIS Index that covers all congressional publications including House and Senate reports, Senate Executive Reports and Documents, and others; Conference Papers Index, ERIC and NTIS.[42]

The National Center for Research in Vocational Education is conducting a project to help community and technical colleges be more effective agents for economic development in their communities through upgrading and retraining of adult workers. A guidebook will be developed containing case studies of five colleges' involvement in economic development, including their structures and processes for doing so; identification of barriers and solutions in providing customized training for industry; and critical elements for success in these economic development activities.[43]

Thus, the challenge is one of systematic analysis of data about changing conditions in the external environment in order to chart a course of action.

Community Development. During the late 1960's and the 1970's, a number of municipalities participated in a process to establish and implement communal or statewide goals. In an article in the March-April 1971 issue of City, Routh indicated that some 100 cities and three state governments had launched such an effort.[44] The first and largest of the major goals programs was that of Dallas, underway for nearly six years by 1971. This effort yielded a set of goals in areas of citizen involvement, continuing education, cultural activities, design of the city, economy, elementary and secondary education, energy, environment, government, health, higher education, housing, human service, public safety, quality of the citizenry, recreation and leisure time, and transportation. That process continues today. A 1978 gift from the Dallas Foundation to Goals for Dallas supported the publication Achieving the Goals for Dallas, 1978-1983.[45]

This type of strategic municipal and regional planning is in the early stages of development and will undoubtedly continue in the 1980's. Municipalities interested in undertaking such a process can obtain a Community Planning Assistance Kit[46] from the Council of Educational Facility Planners and assistance from the International City Management Association including its book The Essential Community: Local Government in the Year 2000.[47] On the rehabilitation side the Northeast-Midwest Institute published Shutdown: A Guide for Communities Facing Plant Closings.[48]

The American Association of Community and Junior Colleges currently is in the second year of a three year grant from the W.W. Kellogg Foundation to establish a series of seminars and workshops in two-year colleges to assist citizen boards of community organizations. Such an effort could be launched for community organizations concerned with economic revitalization.[49] Numerous municipalities have launched community leadership programs, some with assistance from the National Association of Community Leadership Organizations.[50]

Community development or redevelopment holds great potential for the community services and continuing education functions.

Conclusion

During recent years Americans have become concerned about the "return on investment" in postsecondary education. Demands for accountability from tax payers, primarily through state legislatures, have raised the question, "Is support of public postsecondary education worth the investment in terms of the individual and value added to society?"

Numerous issues are important to postsecondary education in the 80's. No issue, however, is more important than the relationship between public postsecondary education and the economy. The story of America's deteriorating infrastructure is all too familiar by now. There were 17,044 business failures in 1981; a 45% increase from the 11,742 in 1980. There were 11,950 business failures in the first six months of 1982.[51] Dale Parnell, President of the American Association of Community and Junior Colleges, states the challenge in the following way:

> At a time when unemployment lines are lengthening, when there is a severe shortage of skilled workers, and when we are experiencing greatly accelerating technological changes, this country simply must retrain millions of people whose current jobs are vanishing. Retraining and continuing education for new jobs will be a key to economic survival of this nation.[52]

In the past, postsecondary education has seen its relationship to the economy primarily in terms of providing an educated pre-entry workforce. That emphasis was broadened to include some continuing education. Recently, new forces have appeared. These forces include foreign competition; rapid technological advances; changes in productivity; high costs; human, plant, and entire industry obsolescence; infrastructure deterioration; and massive dislocations in our economy. New and expanded relationships will be required between postsecondary education and the economy in the computer literate, high technology, information society. Gollattscheck et. al. indicates that the time has come for community renewal colleges.

They state:

> We believe the time has come for a fourth major development in American postsecondary education: the creation of the community renewal college. The deterioration of our communities, the increasing inability of individuals to cope with rapid change, the obsolescence of individuals and social organizations, and the increasing number of citizens with educational needs who are beyond the purview of existing colleges demand a new kind of postsecondary institution. This new college must be committed to the improvement of all aspects of community life....[53]

The way postsecondary education will be more responsive to the needs of society, including the economy, is through strategic planning and management.[54] Although pleas are mounting for tighter relationship between postsecondary education and the economy, our institutional research activities do not suggest much response. Authors of a new book on the future of high technology in the United States have called for a modern "Morrill Act" to generate $1 billion in federal, state, and private support for high technology education.[55] Recently, the Science and Technology Committee introduced H.R. 6950, the National High Technology Technician Training Act. A survey of institutional research activities, however, suggests that very little effort is directed at a critical analysis of social and economic forces external to our colleges.[56] (See Appendix C)

The February 28, 1977, issue of The Chronicle of Higher Education contains an article entitled "Where Are the Leaders in Higher Education?" The author alleges that the modern collegial context has caused the disappearance of the statesman leader in preference to the institutional manager. Knight suggests the way to cope with the challenges of the 80's is through strategic planning, marketing and an entrepreneurial attitude.[57] Whatever our course of action, a statement by John Schoor is most appropriate:

> The future is not a result of choices among alternative paths offered by the present, but a place that is created - created first in mind and will, created next in ability. The future is not some place we are going to but one we are creating. The paths to it are not found but made, and the activity of making them changes both the maker and the destination.

The tools for strategic planning have been refined during the past several years. Now that we have the tools, are we willing to dedicate our institutions as instruments of economic and social change?

OHIO BOARD OF REGENTS

OFFICE OF TWO-YEAR CAMPUSES
A SURVEY OF ORGANIZATIONAL TRAINING AND EDUCATIONAL PROGRAMS

(1) College	____
(2) SIC	____
(3) Intv'r	____
(4) M/Ques	____

The intent of this survey is to identify and describe the formal training and educational programs offered by business, industry, and public employers in Ohio that may be similar to the offerings of colleges, universities or other post-secondary institutions. Your assistance in providing the information requested will be appreciated.

DO NOT RESPOND TO CONFIDENTIAL ITEMS

(5) _____ COMPANY (6) _____ ADDRESS

(7) _____ CITY (8) _____ STATE (9) _____ ZIP (10) _____ DATE

(11) _____ RESPONDING OFFICIAL (12) _____ NO. OF EMPLOYEES (13) _____ PHONE

		Yes (✓)	No (✓)
1.0	Are formal training or educational programs offered by your company or agency in Ohio? If No, proceed to item 12.0. (1.0)	( )	( )

2.0 Kind of Training Offered:

2.1	Professional or managerial preparation. (2.1)	( )	( )
2.2	Upper or graduate level technical or scientific training in the sciences, engineering, or other disciplines. (2.2)	( )	( )
2.3	Technical training in company methods, practices, and equipment primarily for semi-professional level aides or technicians. (2.3)	( )	( )
2.4	Supervisory and/or mid-management training. (2.4)	( )	( )
2.5	On-the-job training for production, office, technical and/or skilled trades employees. (2.5)	( )	( )
2.6	Apprenticeship programs(s). (2.6)	( )	( )
2.7	Personal improvement and cultural appreciation programs and courses. (2.7)	( )	( )
2.8	General and/or basic education especially for high school non-graduates (2.8)	( )	( )
2.9	Other (please specify): _____		

3.0 Location of Your Training Facilities:

3.1	At this company/agency facility. (3.1)	( )	( )
3.2	At other company/agency locations in Ohio. Please list: (3.2)	( )	( )

3.21 _____ Office/Firm/Agency _____ Contact Person

_____ Address _____ Title

_____ City ____ ZIP _____ Phone

3.22 _____ Office/Firm/Agency _____ Contact Person

_____ Address _____ Title

_____ City ____ ZIP _____ Phone

Additional items on back of page!

		Yes (✓)	No (✓)
4.0	Clientele Served:		
4.1	Employees	(4.1)( )	( )
4.2	Dependents of Employees	(4.2)( )	( )
4.3	Employees of other firms and organizations via contract.	(4.3)( )	( )
4.4	Other (please specify) _____		
	_____		
5.0	Organization of Instruction (exclude on-the-job training or O.J.T.):		
5.1	Short term workshops, conferences, and seminars (maximum duration, 3 weeks).	(5.1)( )	( )
5.2	Formal classes and courses scheduled over several weeks or months.	(5.2)( )	( )
5.3	Other formal classes and courses: _____		
	_____		
6.0	Instructional Staffing (of 5.1 through 5.3):		
6.1	Special outside consultants or instructors hired by the for each program or course.	(6.1)( )	( )
6.2	Staff members of the company/agency training department(s).	(6.2)( )	( )
6.3	Other employees not a part of the company/agency training department(s).	(6.3)( )	( )
6.4	Faculty members from neighboring colleges.	(6.4)( )	( )
6.5	Other (please specify)_____ _____		
7.0	Instructional Schedules		
7.1	On employee time.	(7.1)( )	( )
7.2	On company time.	(7.2)( )	( )
7.3	On a combination of employee time and company/agency time.	(7.3)( )	( )
7.4	Other arrangements (please describe). _____		
	_____		

8.0 Size of Training Effort

8.1 Number of employees and others enrolled annually in courses or programs conducted or sponsored by the company/agency (exclude regular college course enrollment). Check one item (✓):

8.11 1 - 50	(8.11)( )
8.12 51 - 200	(8.12)( )
8.13 201 - 500	(8.13)( )
8.14 More than 500	(8.14)( )

8.2 Number of company/agency employees hired annually as instructors (exclude O.J.T. supervision). Check one item (✓):

8.21 1 - 3	(8.21)( )
8.22 4 - 10	(8.22)( )
8.23 11 - 20	(8.23)( )
8.24 More than 20	(8.24)( )

	Yes (✓)	No (✓)

8.0 Size of Training Effort (continued)

8.3 Number of professionals planning and managing training programs of the company/agency. Check one item (✓):

8.31 1 - 3	(8.31)( )	
8.32 4 - 10	(8.32)( )	
8.33 11 - 20	(8.33)( )	
8.34 More than 20	(8.34)( )	

8.4 Estimated percentage of your organization's total training currently done by the company/agency is (8.4)___ o/o

8.5 The portion of the company/agency training effort that is, or could be contracted by outside consultants, is (8.5)___ o/o.

9.0 Degrees and Certificates Awarded:

9.1	Diplomas or completion certificates are awarded upon successful completion of each course, seminar, or workshop.	(9.1)( )	( )
9.2	Formal arrangements exist for awarding or transferring credit toward an associate (2-year) degree in a college or university branch campus.	(9.2)( )	( )

Please name colleges or universities involved:_____

_____

9.3 Formal arrangements exist for awarding or transferring credit toward a baccalaureate degree in a college or university. (9.3)( ) ( )

Please name colleges or universities involved:_____

_____

9.4 Formal arrangements exist for awarding or transferring credit toward a graduate degree in a college or university. (9.4)( ) ( )

Please name colleges or universities involved and the degree (M.S., M.A., Ph.D. etc.) to which credit can be applied:

College/University	Degree
_____	_____
_____	_____

10.0 Cooperative Agreements/Contracts with Colleges, Universities, and Other Post-Secondary Schools:

10.1 Agreement(s) or contracts to provide instructional programs for company/agency employees are in effect. If Yes, list institutions: (10.1) ( ) ( )

College/University	Program Provided
_____	_____
_____	_____

Additional items on back of page!

	Yes (✓)	No (✓)

11.0 Accreditation, Registrations, and Approvals

11.1 Accreditation, certification, approval, or other formal recognition by professional, scientific, educational, or governmental agencies has been awarded. If Yes, please list the program(s) and approval or certifying agency or organization involved. (11.1) ( ) ( )

Training Program	Agency

12.0 College Fee Reimbursement for Employees

12.1 The company/agency maintains a policy through which employees are reimbursed for successful completion of college courses and programs. (12.1) ( ) ( )

12.2 Employee enrollment and reimbursement for college courses generally is

12.21 Encouraged and approved for all or most employees (12.2) ( ) ( )

12.22 Approved only when job or promotion requirements dicatate the need. (12.21) ( ) ( )

12.23 Approved only when recommended by a supervisor. (12.22) ( ) ( )

12.24 Other(please specify): (12.23) ( ) ( )

13.0 Training Needed:

Please list any training needs that could be discussed with a college official:

NOTES AND COMMENTS

APPENDIX C

MOST FREQUENT AREAS OF INSTITUTIONAL RESEARCH ACTIVITY

NOTED BY AIR MEMBERS EMPLOYED IN OFFICES OF

INSTITUTIONAL RESEARCH AND IN OTHER ORGANIZATIONAL SETTINGS

Institutional Research Activities	Total (N = 674)		Institutional Research Offices (N = 295)		Other Offices/ Settings (N = 379)	
	N	Rank	N	Rank	N	Rank
Developing enrollment projections	406	1	210	2	196	3.5
Support of institutional-level planning processes	404	2	200	3	204	1
Analyzing student retention/attrition	400	3	215	1	185	9
Analyses of instructional program credit hour costs	388	4	197	5	191	5.5
Management information systems	386	5	190	7	196	3.5
Use of statistical packages for planning and analyses	377	6	189	8	188	8
Goal setting	357	7	167	11.5	190	7
Meeting external reporting needs	349	8.5	182	9	167	13
Fact book development	349	8.5	198	4	151	17
Implementation of planning processes	344	10	142	27	202	2
Data base development/management and control	342	11	160	13	182	10.5
Institutional self-study/accreditation	340	12	194	6	146	-
Faculty workload analysis	327	13	167	11.5	160	14
Analyses of revenue and expenditure patterns	315	14	133	24	182	10.5
Analyses of salaries/fringe benefits	310	16	156	17	154	15
Analysis of planning strategies and political approaches	310	16	119	-	191	5.5
Analyses of resource utilization	310	16	131	25.5	179	12
Follow-up surveys of graduates	309	18	179	10	130	-
Reporting of space utilization and inventory data	299	19	155	18.5	144	19.5
Space utilization cost studies	289	20	151	21	138	22.5
Development of student credit hour projections	284	22	155	18.5	129	-
Development/Adaptation of planning models to institutional environments	279	23	126	-	153	16
Analyses of administrative and departmental support costs	268	24.5	131	25.5	137	24
Analyses of grading trends, policies, grade inflation	268	24.5	158	14	110	-
Interinstitutional data exchanges	267	26	137	23	130	-

SOURCE: AIR Newsletter (Summer 1982) p. 3.

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